

BUSINESS AND DEVELOPMENT, CLIMATE, GREEN HYDROGEN

'I'm not anti-hydrogen, I'm anti-bullshit': Why 'green' hydrogen is hyped by the oil and gas industry


 BY JOAN BAXTER
 AUGUST 9, 2023


Premier Tim Houston (right), EverWind founder and CEO Trent Vichie (centre), Membertou First Nation Chief Terrance Paul (2nd from left), and other dignitaries at the signing of the MOU with Uniper and E.ON in Germany for "offtake" of green ammonia. Credit: EverWind Fuels

In this two-part series, the Halifax Examiner takes another deep dive into the rapidly evolving story of “green hydrogen and ammonia” projects in Nova Scotia, what their proponents are saying, what their critics are saying, what the hydrogen hype is all about, and whether it is a genuine effort to tackle the climate crisis. In

this second article, we hear from critics of the hydrogen craze, who's behind it, and why governments are so gung-ho to use vast amounts of public money to support it. The first article is [here](#).

In a [**July 27 interview on CBC Halifax Mainstreet**](#), Canada's Minister of Energy and Natural Resources, Jonathan Wilkinson, said he had been meeting with EverWind Fuels while he was in Halifax. Wilkinson told host Jeff Douglas that the [**2023 federal budget**](#) was providing "very generous" investment tax credits for companies like EverWind, which will generate electricity and use the electricity to produce hydrogen.

"For the scale of the project the companies like EverWind and others are developing, [the investment tax credits] would count in the many hundreds of millions of dollars for each project," said Wilkinson.

EverWind has [**four lobbyists promoting its interests**](#) to the elected officials and senior public servants in Ottawa, and one of them — EverWind's CFO Matthew Tinari — has met with Wilkinson twice in the past year. That lobbying appears to have paid off.



Jonathan Wilkinson, Minister of Energy and Natural Resources Canada Credit: Contributed

Larry Hughes is founding fellow of the MacEachen Institute for Public Policy and Governance, and professor of electrical and computer engineering at Dalhousie University. Hughes has looked closely at the various investment tax credits in the [**2023 federal budget**](#) for “clean electricity” and a “clean economy.”

In an email to the Halifax Examiner, Hughes notes some of the ways the federal budget can benefit EverWind’s [**green hydrogen and ammonia project at Point Tupper**](#) in Nova Scotia, and a second one it has planned in [**Newfoundland**](#).

Hughes writes, “The budget is promising an investment tax credit of 40% for hydrogen producers with emissions intensities below 450 grams of CO₂e [carbon dioxide equivalent] per kilogram of hydrogen produced,” if they meet employment requirements.



Larry Hughes Credit: Dalhousie University

Hughes says there is also the “clean hydrogen investment tax credit” that is expected to cost \$5.6 billion between 2023 and 2028, and an additional \$12.1 billion between 2028 and 2035.

But even that’s not all.

Hughes notes that, “Hydrogen producers can also benefit for investing in clean electricity projects such as wind or solar-electric with Indigenous groups which contribute to a net-zero grid.”

"The clean electricity investment tax credit is a refundable 15% tax credit," he adds.

Tax credits = subsidies

Dalhousie University economics professor Talan Iscan tells the Halifax Examiner that these investment tax credits are "equivalent to subsidizing the business by giving them direct cash payments, with the difference that the subsidies associated with the investment tax credits are linked to the amount of investment."

Iscan says the investment tax credit for "clean hydrogen" is controversial. He explains that it includes the production of "blue" hydrogen production powered using natural gas (a deceptively benign name for a gas that is mostly methane) and ineffective carbon capture and storage technologies, as is being done in Alberta.

Thus, Iscan says, the clean hydrogen tax credits are "effectively a subsidy to oil and gas companies in Alberta."

Iscan was a signatory to [a February 2023 letter](#) from more than 100 academics and 50 civil society organizations urging the federal government not to subsidize "clean" (fossil fuel-produced) hydrogen and carbon capture systems. Their submission was ignored.

'Subsidy-harvesting projects'

Julia Levin, associate director for national climate at Environmental Defence Canada, helped coordinate that letter. She tells the Examiner that hydrogen projects can also qualify for funds from the \$8 billion [Net Zero Accelerator Fund](#), part of the [Strategic Innovation Fund](#) out of the federal department of Innovation, Science and Economic Development.

The federal registry of lobbyists shows that EverWind has [applied for funding](#) from the Strategic Innovation Fund for its "renewable energy project."

Levin adds, "We are expecting pretty big subsidies for Atlantic Canadian hydrogen projects."



Julia Levin Credit: Environmental Defence Canada

And there is still more public money on the table for hydrogen projects.

Says Levin:

There is also the Canada Infrastructure Bank. They were told that hydrogen is the priority area and in the last [federal] budget they were given two different \$10 billion funds. And we are seeing lots of provincial subsidies for hydrogen too. There are just so many parts of government that are subsidizing hydrogen.

"So I understand why these projects attract investors, because there seems to be zero risk to them," Levin says. "The government is willing to take most of that risk."

Levin calls them "subsidy-harvesting projects."

She's not the only one.

'Green-wishing' and an epidemic of hydrogen 'hopium'

Paul Martin is a chemical engineer with a 30-year history of working with, making, and using hydrogen, and a member of the **Hydrogen Science Coalition**. He **describes himself** as a “tireless advocate for a fossil fuel-free future.”

Martin calls the hype over hydrogen for decarbonisation an “epidemic of hopium addiction.”

“It’s a combination of wishful thinking, magical thinking, and green-wishing,” Martin says in an interview.



Paul Martin Credit: contributed

In his copious writing on the hydrogen push, Martin **mocks lobbyists' claims** that hydrogen is the “Swiss army knife” of the energy transition, pointing out that both are “handy in a pinch” but “rarely the optimal tool for any task.”

Martin, like Levin, is skeptical that projects like EverWind's are a step towards decarbonisation in Nova Scotia, or anywhere else. In an email, Martin writes that the ammonia to be exported to Germany represents a small fraction of the amount of Nova Scotia wind energy needed to make it. He says the numbers don't add up:

Note that my concerns with this project are related to the “oftake.” Anybody who thinks the Germans will buy 10 kilowatt hours (kWh) worth of Nova Scotia wind electricity, and be satisfied with receiving at most only about 2 kWh at destination PLUS having to pay the cost of all that expensive capital equipment, is kidding themselves. So to me, that makes the project either a subsidy-harvesting scheme or something else less than earnest. It is not an efficient decarbonization strategy, even if the ammonia purchased by Germany were not wasted as a fuel or to make hydrogen again, but rather was used in German chemical plants and agriculture.

If the ammonia were converted back to hydrogen and used as a fuel in a fuel cell or to burn in a gas powerplant in Germany, Martin explains that the energy loss would be five-fold because the hydrogen would produce only 20% of the energy used in Nova Scotia to produce it.

“I find it very difficult to imagine these wind-to-hydrogen-to-ammonia-to-power-in-Germany projects as being economical relative to many other alternatives,” says Martin.

He suggests that such projects will produce only the amounts of ammonia they are subsidized to produce, “with taxpayers paying nearly the entire cost.” Without massive subsidies in Canada and Germany, Martin says it is difficult to see how the projects will be economically viable.

“Hydrogen itself is too expensive to waste as either a heating or vehicle fuel, and as a way to make electricity again, it is expensive to store until you need that electricity,” he says. Martin notes that even then, two-thirds of the energy has already been lost in the process of making the hydrogen.

As for uses for the green hydrogen or ammonia in Nova Scotia, and EverWind claims that their site “with road, rail and water access provides the ability to distribute the green hydrogen into Nova Scotia,” Martin is sceptical.

He says hydrogen is rarely moved around because it is extremely difficult to do so except in minuscule amounts, adding:

While 99% of world hydrogen and hence hydrogen-derived ammonia production is “black,” or made from fossil fuels without carbon capture, Nova Scotia has no black ammonia plants. Its agricultural users will require more nitrate or urea than ammonia due to the climate, would be my guess, and I don’t see plans to make nitrate or urea by EverWind. There are no other major hydrogen users in Nova Scotia that I’m aware of. The nearest major oil refineries are in New Brunswick or Newfoundland — all the Nova Scotia refineries have been shut down. So if they do say, “Yes, we’re planning to sell hydrogen and ammonia in Nova Scotia,” it would be for DUMB uses of ammonia and hydrogen like transport, as a shipping fuel (ammonia as a shipping fuel is terrifying to me as a chemical engineer — it will inevitably lead to major loss of life because ammonia is a poison gas), or heating. And no, burning ammonia or hydrogen in cement plants isn’t a good use of the gas either.

In Martin’s view, the hydrogen push is a distraction, and it would be far better to use renewable electricity directly, rather than to produce ammonia from hydrogen, or bulky hydrogen that would need to be stored.



EverWind Fuels Canada Green Hydrogen and Ammonia Project

[Downloads](#)

EverWind August 2023 project presentation, which shows the site of the hydrogen and ammonia plant in Point Tupper, and four massive wind projects to power the plant, including the Kmtnuk wind farm near Nuttby Mountain in Colchester County, and the Bear Lake facility west of the South Panuke Wilderness Area at the intersection of the municipalities of Halifax, West Hants and Chester, and the ‘largest wind farm in the Western Hemisphere’ and on Crown land in Guysborough County. Credit: EverWind Fuels

Hydrogen storage?

In 2022, EverWind, under its numbered subsidiary [4398437 Nova Scotia Company](#), and two other companies, Australia’s Fortescue and Green Hydrogen International, took out hundreds of exploration licenses

covering more than 100,000 hectares on underground salt deposits in Nova Scotia.

Related: 'Green' hydrogen industry takes aim at Nova Scotia underground salt deposits

Martin points out that if any hydrocarbons or hydrogen are to be stored underground where there are salt deposits, first the salt brine would have to be pumped out.

Previous plans to do just that have not gone well in Nova Scotia.



Grandmothers and water protectors at the Alton Gas site. Still from Elliott Page's film "There's Something in the Water." Credit: Contributed

As the Examiner reported in November 2022:

Nova Scotians have not forgotten the highly controversial project by Alton Gas Natural Gas Storage project, which planned to flush brine out of salt caverns near Stewiakie, and dispose of it into the Shubenacadie River.

There was intense Mi'kmaw opposition, spearheaded by the Grassroots Grandmothers, to the Alton Gas project, and it was cancelled in 2021.

'I'm not anti-hydrogen, I'm anti-bullshit'

Martin points out that hydrogen molecules are extremely important, and hydrogen has important uses in chemical processes as a reducing agent that doesn't produce carbon dioxide. Thus, he says, it is smart to use hydrogen in producing iron metal from iron ore, and indeed 10% of the world's hydrogen is already used for this.

"So these are the high priority uses for hydrogen, replacing existing uses of hydrogen that are made from fossil fuels without carbon capture," Martin says. "The business of making electricity out of it, whether to run a vehicle or worst of all to make comfort heat in home, those are the dumbest of the dumb applications."

He laughs off criticism that he is anti-hydrogen. "I made hydrogen for 30 years," Martin says. "I'm anti-hydrogen? No, I love hydrogen. I hate to see people talking about burning it. It's stupid. It's extremely expensive. It makes no sense to me."

"I'm not anti-hydrogen, I'm anti-bullshit," Martin says. "And this is bullshit, this stuff."

Martin notes that 120 million tonnes — 99% — of the hydrogen made each year in the world is made from fossil fuels without carbon capture, and its greenhouse gas emissions exceed those of the entire aviation industry.

"Hydrogen itself is a massive decarbonization problem," he says. "And despite that fact, we have project proponents wanting to waste it as a fuel. That doesn't make sense as a decarbonization strategy, so it must be about something else."

'Being pushed by the fossil fuel industry'

Asked where all the hydrogen hype originated, Martin replies:

It's being pushed by the fossil fuel industry, which knows their relevance will disappear in a carbonized future without hydrogen. And then there is a group of people that ranges from the earnest but a little credulous, to self-interested. Or to use the other unapologetic term that was once used about the various groups in Western countries by the Soviets, the "useful idiots" of the fossil fuel industry.

In Europe, Martin says the hydrogen hype is coming largely from a group called Hydrogen Europe.

Hydrogen Europe describes itself as "the European association representing the interest of the hydrogen industry and its stakeholders and promoting hydrogen as an enabler of a zero-emission society."

Says Martin:

And who is Hydrogen Europe? It's a mouthpiece for the fossil fuel industry and other financially interested parties, occupied by the likes of Shell. Many of these companies profit from the attempt to build a "hydrogen economy" at public expense, even if that attempt is a failure.

In Canada, Martin says the main driver of the hydrogen rush is Alberta's gas industry, where companies make "blue" hydrogen using natural gas and attempting to bury the carbon dioxide. Although the carbon capture is extremely expensive and **ineffective**, and the resulting hydrogen is what Martin calls "blackish blue bruise-coloured," those involved in carbon capture and storage still qualify for part of the federal investment tax credits for "clean hydrogen."

'Inconvenient truths about hydrogen'

Corporate Europe Observatory calls itself "a research and campaign group working to expose and challenge the privileged access and influence enjoyed by corporations and their lobby groups" in European policy-making. The Observatory has looked closely at the hydrogen rush and who is behind it, and **writes**:

There are two inconvenient truths about hydrogen. One is the fact that only a tiny percentage of hydrogen is green and the vast majority is made using fossil fuels; the second is that production of green hydrogen at such large scales is unsustainable. But industry and lobbyists promote "green hydrogen" as a lure to ensure the increased use of hydrogen overall...

Not only is green hydrogen at such large scales unsustainable, it works as a Trojan horse for fossil hydrogen. The push for green hydrogen and the hydrogen economy has always been supported by Europe's oil and gas majors, who see it as a back door for hydrogen from fossil gas.

In Martin's view, green hydrogen and ammonia projects like EverWind's in Nova Scotia don't make sense:

It seems to me there is a crazy notion that Germans are going to subsidize hydrogen production all over the world, all at once, and buy it all in the form of ammonia, because you can't ship it as hydrogen ... And this [notion] is being used to rope in Canadian taxpayer largesse in the form of investment tax credits, along with credulous investor money.

Martin advises that someone should do the math to calculate what will happen to the hydrogen assets when the subsidies all come off.

Asked what he thinks Nova Scotia should be doing to get off fossil fuels to address the climate crisis, Martin says:

I wish that, for heaven's sake, Nova Scotia would get its act together and build a bigger interconnector with Labrador. And tonnes and tonnes of wind to back up that interconnector and use that to decarbonize its own grid. That would be rather wonderful.

This week EverWind will be unveiling its plans for the first two of four new wind farms in Nova Scotia, as reported in the [**first part**](#) of this series.

However, the wind captured by those farms will not be turned into electricity to help Nova Scotians reduce their dependency on coal and decarbonize their grid, but to produce green hydrogen and ammonia — nearly all of which will be shipped to Europe.

Related articles



Martin MacLellan

August 10, 2023 at 10:08 am

▼ Expand comments
